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(21) Abstract for American Physical Society, New York Meeting, January 28-31, 1959.

(6) *accept* *(10) by*  
Phase Transitions in Hexafluorophosphate Salts, \*K. Vedam, R. Pepinsky, Joseph

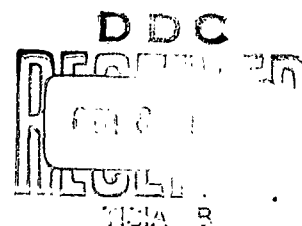
Lajzerowicz, Y. Okaya and N. Stemple, The Pennsylvania State University.—

$\text{NH}_4\text{PF}_6 \cdot \text{NH}_4\text{F}$  is tetragonal at room temperature, and has two low-temperature transitions: at  $-45^\circ\text{C}$  ( $= T_{uc}$ ) and at  $-101^\circ\text{C}$  ( $= T_{lc}$ ).<sup>1</sup> Both low-temperature phases are orthorhombic. The dielectric constant  $\epsilon_{[110]}$  exhibits a small anomaly at  $T_{uc}$ , and a pronounced anomaly at  $T_{lc}$ . X-ray examination reveals superstructuring along the  $a$  and  $b$  axes below  $T_{uc}$ , and a doubling of the  $c$  axis below  $T_{lc}$ . The lowest phase is antiferroelectric. A detailed structural investigation is required to reveal the dielectric character of the intermediate phase.

An order-disorder transition has been observed in  $\text{KPF}_6$  at  $4^\circ\text{C}$ .<sup>1</sup> A detailed x-ray structure analysis reveals hindered rotation of the  $(\text{PF}_6)^{-1}$  octahedra. A large thermal anomaly at the transition temperature suggests a "freezing in" of the hindered rotations in the lower phase.

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<sup>1</sup>R. Pepinsky *et al.*, Acta Cryst. 10, 835 (1957).



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